

Customer No.: 31561
Docket No.: 13129-US-PA
Application No.: 10/711,835

REMARKS

Present Status of the Application

The Office Action rejected claims 1, 4-6 under 35 U.S.C. 102(e), as being anticipated by Sun et al. (US 2004/0253815). The Office Action also rejected claims 7, 10-13, 16-18 under 35 U.S.C. 103(a) as being unpatentable over Sun et al. (US 2004/0253815) in view of Lee et al. (US 2006/0163582).

Applicant has amended claims 1, 7 and 13 and canceled claims 4, 10 and 16 to more clearly define the present invention. After entry of the foregoing amendments, claims 1, 5-7, 11-13 and 17-18 remain pending in the present application, and reconsideration of those claims is respectfully requested.

Discussion of Rejections

The Office Action rejected claims 1, 4-7 under 35 U.S.C. 102(e), as being anticipated by Sun et al. (US 2004/0253815). Applicant has added the limitation in claim 4 into claim 1. Applicant respectfully traverses the rejections for at least the reasons set forth below.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference."
Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir.

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1987). "See M.P.E.P. 2131, Latest Revision August 2006".

The present invention is in general related a method of fabricating a gate as claim 1 recites:

1. A method of fabricating a gate, comprising the steps of:

providing a substrate;

forming a patterned mask layer over the substrate, wherein the patterned mask layer exposes an area on the substrate for forming the gate;

forming a metallic layer over the mask layer and inside the exposed area such that the metallic layer formed over the mask layer is apart from the metallic layer formed inside the exposed area;

forming an oxidation-resistant layer on the metallic layer, wherein the oxidation-resistant layer formed over the mask layer is apart from the oxidation-resistant layer formed inside the exposed area, *and the oxidation-resistant layer comprises a metal silicide compound*; and

removing the mask layer, wherein the metallic layer and the oxidation-resistant layer formed over the mask layer are removed at the same time and the metallic layer and the oxidation-resistant layer formed inside the exposed area is remained so as to form the gate.

The office action stated Sun has disclosed the oxidation-resistance layer is selected from a group consisting of an alloy of metals and a metal silicide compound (see claims 9, 10). Applicant has canceled the limitation of the material of the oxidation-resistance layer is an alloy

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of metals and added the limitation of the material of the oxidation-resistance layer comprises a metal silicide compound into claim 1. Applicant respectfully submits Sun fails to teach the oxidation-resistance layer comprises a metal silicide compound as the amended claim 1 recites. The Sun reference discloses that the multilayer metal is Ti/Al/Ti, Ti/Al/TiN, Ti/Cu/Ti, Cr/Cu/Cr, W/Cu/W, Mo/Al--Nd alloy, MoN/Al--Nd alloy, Mo/Al-Nd alloy/Mo, Ta/Cu/Ta, TaN/Cu/TaN, TiN/Cu/TiN, Ti/Al, or Mo/Al/Mo in its claim 9 and the single metal layer is made of Cr, Cu, Al--Nd alloy, Mo--W alloy, or Al in its claim 10. Sun just teaches the material formed on the metal layer is a metal or metal alloy. Therefore, Sun fails to teach the oxidation-resistance layer comprises a metal silicide compound.

For at least the foregoing reasons, Applicant respectfully submits that independent claim 1 patently defines over the prior art reference, and should be allowed. For at least the same reasons, dependent claims 5-7 patently define over the prior art as a matter of law, for at least the reason that these dependent claims contain all features of their respective independent claim.

The Office Action also rejected claims 7, 10-13, 16-18 under 35 U.S.C. 103(a) as being unpatentable over Sun et al. (US 2004/0253815) in view of Lee et al. (US 2006/0163582). Applicant has added the limitation in claim 10 into claim 7 and added the limitation in claim 16 into claim 13. Applicant respectfully traverses the rejections for at least the reasons set forth below.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation,

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either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

"See M.P.E.P. 2143, Latest Revision August 2006".

The present invention also provides a method of fabricating a pixel unit and a method of fabricating a thin film transistor respectively as claims 7 and 13 recite:

7. A method of fabricating a pixel unit, comprising the steps of:

providing a substrate;

forming a patterned mask layer over the substrate, wherein the patterned mask layer exposes an area on the substrate for forming the gate;

forming a metallic layer over the mask layer and inside the exposed area such that the metallic layer formed over the mask layer is apart from the metallic layer formed inside the exposed area;

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forming an oxidation-resistant layer on the metallic layer, wherein the oxidation-resistant layer formed over the mask layer is apart from the oxidation-resistant layer formed inside the exposed area, *and the oxidation-resistant layer comprises a metal silicide compound;*

removing the mask layer, wherein the metallic layer and the oxidation-resistant layer formed over the mask layer are removed at the same time and the metallic layer and the oxidation-resistant layer formed inside the exposed area is remained so as to form the gate;

forming an insulating layer over the substrate to cover the gate;

forming a channel layer over the insulating layer above the gate;

forming a source and a drain over the channel layer;

forming a passivation layer over the substrate, wherein the passivation layer has an opening that exposes a portion of the drain; and

forming a pixel electrode over the passivation layer such that the pixel electrode is electrically connected to the drain via the opening.

13. A method of fabricating a thin film transistor, comprising the steps of:

providing a substrate;

forming a patterned mask layer over the substrate, wherein the mask layer exposes an area on the substrate for forming the gate;

forming a metallic layer over the mask layer and inside the exposed area such that the metallic layer formed over the mask layer is apart from the metallic layer formed inside the exposed area;

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forming an oxidation-resistant layer on the metallic layer, wherein the oxidation-resistant layer formed over the mask layer is apart from the oxidation-resistant layer formed inside the exposed area, *and the oxidation-resistant layer comprises a metal silicide compound;*

removing the mask layer, wherein the metallic layer and the oxidation-resistant layer formed over the mask layer are removed at the same time and the metallic layer and the oxidation-resistant layer formed inside the exposed area is remained so as to form the gate;

forming an insulating layer over the substrate to cover the gate;

forming a channel layer over the insulating layer above the gate; and

forming a source and a drain over the channel layer.

The office action stated Sun has disclosed the oxidation-resistance layer is selected from a group consisting of an alloy of metals and a metal silicide compound (see claims 9, 10). Applicant has canceled the limitation of the material of the oxidation-resistance layer is an alloy of metals and added the limitation of the material of the oxidation-resistance layer comprises a metal silicide compound into claims 7 and 13. As discussed above, Sun fails to teach the oxidation-resistance layer comprises a metal silicide compound. The Sun reference discloses that the multilayer metal is Ti/Al/Ti, Ti/Al/TiN, Ti/Cu/Ti, Cr/Cu/Cr, W/Cu/W, Mo/Al--Nd alloy, MoN/Al--Nd alloy, Mo/Al-Nd alloy/Mo, Ta/Cu/Ta, TaN/Cu/TaN, TiN/Cu/TiN, Ti/Al, or Mo/Al/Mo in its claim 9 and the single metal layer is made of Cr, Cu, Al--Nd alloy, Mo--W alloy, or Al in its claim 10. Sun just teaches the material formed on the metal layer is metal or metal

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alloy. Therefore, Sun fails to teach the oxidation-resistance layer comprises a metal silicide compound.

In addition, Lee also fails to teach the oxidation-resistance layer comprises a metal silicide compound. Lee cannot cure the deficiencies of Sun. Therefore, independent claims 7 and 13 are patentable over Sun and Lee. For at the least the same reasons, their dependent claims 11-12 and 17-18 are also patentable as a matter of law.

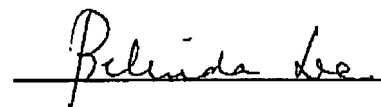
CONCLUSION

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For at least the foregoing reasons, it is believed that the pending claims are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

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Respectfully submitted,


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